



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX LABORATORY
1337 S. 46TH STREET
BLDG. 201
RICHMOND, CA 94804-4698

MAY 28 1999

MEMORANDUM

SUBJECT: Case R99S30
Results of Perchlorate Analysis

FROM: *ef* Brenda Bettencourt, Director
Region 9 Laboratory (PMD-2)

A handwritten signature in black ink, appearing to read "Brenda Bettencourt".

TO: Craig Cooper, Remedial Project Manager
Hawaii, Nevada, California Cleanup Section (SFD-7-4)

Attached are the report narratives and results spreadsheets from analysis of water samples from the Newmark/Muscoy Superfund site. These data have been reviewed in accordance with EPA Region 9 Laboratory policy. Summary information for the data included in this report is as follows:

SITE/PROJECT:	Newmark/Muscoy
CASE:	R99S30
SAMPLE DELIVERY GROUPS:	99106F, 99111D, 99113C, 50106, 50017
LABORATORY:	U. S. EPA Region 9 Laboratory
ANALYSIS:	Perchlorate by R9 Lab SOP 531 (Cal DHS Method)

Full documentation packages for these data, including raw data and sample custody documentation, have been prepared and sent to the Quality Assurance Program (PMD-3). Please contact Vance Fong for information regarding third-party review and/or validation of the data.

If you have any questions please contact Rich Bauer at (510) 412-2312, or Ken Hendrix at (510) 412-2321.

ATTACHMENTS: Analytical Reports

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

CASE NUMBER:	R99S30
SAMPLE DELIVERY GROUP:	99106F
PROGRAM:	SUPERFUND
DOCUMENT CONTROL #:	ESTW-9B-2023
DATE:	05/03/99
ANALYSIS:	PERCHLORATE

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
50056	AB22003
50057	AB22004
50058	AB22005
50059	AB22006
50060	AB22007
50061	AB22008
50062	AB22009
50028	AB22042
50030	AB22043
50029	AB22044
50074	AB22046
50094	AB22047
50082	AB22048
50092	AB22049
50090	AB22050
50086	AB22051
50085	AB22052

GENERAL COMMENTS

Seventeen water samples were received from the Newmark Source OU Superfund project on 04/16/99 and 04/21/99.

The requested analysis was perchlorate (R9 Lab SOP 531). All samples were analyzed within the required technical holding time.

SAMPLE RECEIPT AND PRESERVATION

No shipping or preservation problems were encountered with these samples.

ANALYTICAL COMMENTS

The requirements of the method were adhered to and all QA/QC criteria for perchlorate by R9 Laboratory SOP 531 were met.

QA/QC SUMMARY

Laboratory Reagent Blanks (LRB)

A laboratory reagent blank is laboratory reagent water or baked sand with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. The laboratory reagent blank is used to determine the level of contamination introduced by the laboratory during analysis.

No analytes were detected in the blanks associated with this SDG.

Laboratory Fortified Matrix Spike (LFM) and Laboratory Duplicate Analysis (QC Sample:50056)

The laboratory fortified matrix spike sample and laboratory duplicate analyses provide information about the effect of the sample matrix on sample preparation and measurement. Poor percent recovery (%R) results and large relative percent difference (RPD) between duplicates may indicate inconsistent laboratory technique, sample nonhomogeneity in soils, or matrix effects which may interfere with analysis.

All LFM recoveries were within the 75-125% method QC limits. The RPDs for the duplicates were less than or equal to the QC limit of 20% for all analytes where the sample result was greater than or equal to 5 times the quantitation limit. For analytes where the sample result is less than 5 times the quantitation limit the difference between the duplicates was less than the quantitation limit, as required by the method.

Laboratory Fortified Blank (LFB) Analysis

The laboratory fortified blank is laboratory reagent water or baked sand with a known concentration of the analytes of interest added by the laboratory with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. Poor percent recovery (%R) results may indicate inconsistent laboratory technique.

All LFB recoveries were within the method QC limits.

All other method QC criteria were met.

Questions concerning the data can be answered by Patrick Hirata at (510) 412-2354.

**USEPA REGION 9 LABORATORY
QUALIFIER DEFINITIONS FOR INORGANIC SAMPLE RESULTS**

- U** The analyte was analyzed for, but was not detected above one half the Quantitation Limit (QL). The reported value is the QL for all analytes.

- J** The reported value was obtained from a reading that was less than the Quantitation Limit (QL) but greater than or equal to one half the QL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R99S30
Site: NEWMARK SOURCE OU
SDG: 99106F
Date: 05/04/99

Analysis: Perchlorate
Matrix: Water

Station Location	CJ-2		CJ-2		CJ-2		CJ-1A		CJ-1		CJ-3		CJ-7	
Client Sample I.D.	50056		50057		50058		50059		50060		50061		50062	
Lab Sample I.D.	AB22003		AB22004		AB22005		AB22006		AB22007		AB22008		AB22009	
Date of Collection	04/14/99		04/14/99		04/14/99		04/14/99		04/14/99		04/14/99		04/14/99	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

Station Location	MW10A		MW10C		MW10B		MUNI-01		MUNI-112		MUNI-18		MUNI-108	
Client Sample I.D.	50028		50030		50029		50074		50094		50082		50092	
Lab Sample I.D.	AB22042		AB22043		AB22044		AB22046		AB22047		AB22048		AB22049	
Date of Collection	04/20/99		04/20/99		04/20/99		04/19/99		04/19/99		04/19/99		04/19/99	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

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QL - Quantitation Limit

Station Location	MUNI-104B		MUNI-102		MUNI-101		N/A		N/A	
Client Sample I.D.	50090		50086		50085		LRB		QL	
Lab Sample I.D.	AB22050		AB22051		AB22052		AB22012		N/A	
Date of Collection	04/20/99		04/20/99		04/20/99		N/A		N/A	
Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	
Perchlorate	5	U	5	U	5	U	5	U	5	

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QL - Quantitation Limit

US E.P.A.
REGION 9 LABORATORY
May 4, 1999
Case Number: R99S30
SDG: 99106F

Laboratory Fortified Matrix (50056)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Spike Added (ug/L)	LFM Result (ug/L)	% Recovery	Q
04/26/99	Perchlorate	5	U	25	28.34	113	

Laboratory Duplicate Sample (50056)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Duplicate Result (ug/L)	C	RPD	Q
04/26/99	Perchlorate	5	U	5	U	N/A	

Laboratory Fortified Blank (LFB)

Analyzed Date	Analyte	TrueValue (ug/L)	Result (ug/L)	% Recovery
04/26/99	Perchlorate	45	42.69	95

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

CASE NUMBER:	R99S30
SAMPLE DELIVERY GROUP:	99111D
PROGRAM:	SUPERFUND
DOCUMENT CONTROL #:	ESTW-9B-2036
DATE:	05/05/99
ANALYSIS:	PERCHLORATE

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
50084	AB22053
50083	AB22054
50075	AB22055
50079	AB22056
50080	AB22057
50081	AB22058
50078	AB22059
50063	AB22060
50064	AB22061
50000	AB22062
50001	AB22063
50002	AB22064
50003	AB22065
50004	AB22122
50005	AB22123
50048	AB22124
50050	AB22125
50051	AB22126
50052	AB22127
50053	AB22128

GENERAL COMMENTS

Twenty water samples were received from the Newmark Source OU Superfund project on 04/21/99 and 04/23/99.

The requested analysis was perchlorate by R9 Lab SOP 531. All samples were analyzed within the required technical holding time.

SAMPLE RECEIPT AND PRESERVATION

No shipping or preservation problems were encountered with these samples.

ANALYTICAL COMMENTS

The requirements of the method were adhered to and all QA/QC criteria for perchlorate by R9 Lab SOP 531 were met.

QA/QC SUMMARY

Laboratory Reagent Blanks (LRB)

A laboratory reagent blank is laboratory reagent water or baked sand with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. The laboratory reagent blank is used to determine the level of contamination introduced by the laboratory during analysis.

No analyte was detected in the blank associated with this SDG.

Laboratory Fortified Matrix Spike (LFM) and Laboratory Duplicate Analysis (QC Sample:50079)

The laboratory fortified matrix spike sample and laboratory duplicate analyses provide information about the effect of the sample matrix on sample preparation and measurement. Poor percent recovery (%R) results and large relative percent difference (RPD) between duplicates may indicate inconsistent laboratory technique, sample nonhomogeneity in soils, or matrix effects which may interfere with analysis.

The LFM recovery was within the 75-125% method QC limits. The RPD for the duplicate was less than or equal to the QC limit of 20% for all analytes where the sample result was greater than or equal to 5 times the quantitation limit. For analytes where the sample result is less than 5 times the quantitation limit the difference between the duplicate was less than the quantitation limit, as required by the method.

Laboratory Fortified Blank (LFB) Analysis

The laboratory fortified blank is laboratory reagent water or baked sand with a known concentration of the analytes of interest added by the laboratory with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. Poor percent recovery (%R) results may indicate inconsistent laboratory technique.

The LFB recovery was within the method QC limits.

All other method QC criteria were met.

Questions concerning the data can be answered by Patrick Hirata at (510) 412-2354.

**USEPA REGION 9 LABORATORY
QUALIFIER DEFINITIONS FOR INORGANIC SAMPLE RESULTS**

- U** The analyte was analyzed for, but was not detected above one half the Quantitation Limit (QL). The reported value is the QL for all analytes.

- J** The reported value was obtained from a reading that was less than the Quantitation Limit (QL) but greater than or equal to one half the QL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R99S30
Site: NEWMARK SOURCE OU
SDG: 99111D
Date: 05/06/99

Analysis: Perchlorate
Matrix: Water

Station Location	MUNI-24		MUNI-22		MUNI-13		MUNI-16		MUNI-16		MUNI-16		MUNI-14	
Client Sample I.D.	50084		50083		50075		50079		50080		50081		50078	
Lab Sample I.D.	AB22053		AB22054		AB22055		AB22056		AB22057		AB22058		AB22059	
Date of Collection	04/20/99		04/20/99		04/20/99		04/20/99		04/20/99		04/20/99		04/20/99	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

Station Location	CJ-6		CJ-16		MW01A		MW01B		MW01C		MW01D		MW01E	
Client Sample I.D.	50063		50064		50000		50001		50002		50003		50004	
Lab Sample I.D.	AB22060		AB22061		AB22062		AB22063		AB22064		AB22065		AB22122	
Date of Collection	04/15/99		04/15/99		04/20/99		04/20/99		04/20/99		04/20/99		04/21/99	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

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QL - Quantitation Limit

Station Location	MW01F		MUNI-7B		MUNI-9B		MUNI-9B		MUNI-9B		MUNI-9C		N/A	
Client Sample I.D.	50005		50048		50050		50051		50052		50053		LRB	
Lab Sample I.D.	AB22123		AB22124		AB22125		AB22126		AB22127		AB22128		AB22066	
Date of Collection	04/21/99		04/22/99		04/22/99		04/22/99		04/22/99		04/22/99		N/A	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

Station Location	N/A
Client Sample I.D.	QL
Lab Sample I.D.	N/A
Date of Collection	N/A
Units	ug/L
Analyte	Result
Perchlorate	5

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

**US E.P.A.
REGION 9 LABORATORY**

**May 5, 1999
Case Number: R99S30
SDG: 99111D**

Laboratory Fortified Matrix (50079)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Spike Added (ug/L)	LFM Result (ug/L)	% Recovery	Q
04/26/99	Perchlorate	5	U	25	27.03	108	

Laboratory Duplicate Sample (50079)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Duplicate Result (ug/L)	C	RPD	Q
04/26/99	Perchlorate	5	U	5	U	N/A	

Laboratory Fortified Blank (LFB)

Analyzed Date	Analyte	TrueValue (ug/L)	Result (ug/L)	% Recovery
04/26/99	Perchlorate	45	44.46	99

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

CASE NUMBER:	R99S30
SAMPLE DELIVERY GROUP:	99113C
PROGRAM:	SUPERFUND
DOCUMENT CONTROL #:	ESTW-9B-2044
DATE:	05/26/99
ANALYSIS:	PERCHLORATE

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
50038	AB22129
50039	AB22130
50040	AB22131
50041	AB22132
50047	AB22133
50046	AB22134
50045	AB22135
50044	AB22136
50033	AB22137
50032	AB22138
50031	AB22139
50024	AB22145
50025	AB22146
50026	AB22147
50027	AB22148
50023	AB22149
50022	AB22150
50010	AB22151
50011	AB22152

GENERAL COMMENTS

Nineteen water samples were received from the Newmark Source OU Superfund project on 04/23/99 and 04/28/99.

The requested analysis was perchlorate by R9 Lab SOP 531. All samples were analyzed within the required technical holding time.

SAMPLE RECEIPT AND PRESERVATION

No shipping or preservation problems were encountered with these samples.

ANALYTICAL COMMENTS

The requirements of the method were adhered to and all QA/QC criteria for perchlorate by R9 Lab SOP 531 were met.

QA/QC SUMMARY

Laboratory Reagent Blanks (LRB)

A laboratory reagent blank is laboratory reagent water or baked sand with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. The laboratory reagent blank is used to determine the level of contamination introduced by the laboratory during analysis.

No analyte was detected in the blanks associated with this SDG.

Laboratory Fortified Matrix Spike (LFM) and Laboratory Duplicate Analysis (QC Samples: 50038 and 50024)

The laboratory fortified matrix spike sample and laboratory duplicate analyses provide information about the effect of the sample matrix on sample preparation and measurement. Poor percent recovery (%R) results and large relative percent difference (RPD) between duplicates may indicate inconsistent laboratory technique, sample nonhomogeneity in soils, or matrix effects which may interfere with analysis.

All LFM recoveries were within the 75-125% method QC limits. The RPDs for the duplicates were less than or equal to the QC limit of 20% for all analytes where the sample result was greater than or equal to 5 times the quantitation limit. For analytes where the sample result is less than 5 times the quantitation limit the difference between the duplicates was less than the quantitation limit, as required by the method.

Laboratory Fortified Blank (LFB) Analysis

The laboratory fortified blank is laboratory reagent water or baked sand with a known concentration of the analytes of interest added by the laboratory with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. Poor percent recovery (%R) results may indicate inconsistent laboratory technique.

All LFB recoveries were within the method QC limits.

All other method QC criteria were met.

Questions concerning the data can be answered by Patrick Hirata at (510) 412-2354.

**USEPA REGION 9 LABORATORY
QUALIFIER DEFINITIONS FOR INORGANIC SAMPLE RESULTS**

- U** The analyte was analyzed for, but was not detected above one half the Quantitation Limit (QL). The reported value is the QL for all analytes.
- J** The reported value was obtained from a reading that was less than the Quantitation Limit (QL) but greater than or equal to one half the QL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R99S30
Site: NEWMARK SOURCE OU
SDG: 99113C
Date: 05/26/99

Analysis: Perchlorate
Matrix: Water

Station Location	MW-128B		MW-128B		MW-128B		MW-128C		MW-130C		MW-130B		MW-130A	
Client Sample I.D.	50038		50039		50040		50041		50047		50046		50045	
Lab Sample I.D.	AB22129		AB22130		AB22131		AB22132		AB22133		AB22134		AB22135	
Date of Collection	04/21/99		04/21/99		04/21/99		04/21/99		04/21/99		04/21/99		04/21/99	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

Station Location	MW-129C		MW11C		MW11B		MW11A		MW08B		MW08A		MW09A	
Client Sample I.D.	50044		50033		50032		50031		50024		50025		50026	
Lab Sample I.D.	AB22136		AB22137		AB22138		AB22139		AB22145		AB22146		AB22147	
Date of Collection	04/22/99		04/21/99		04/21/99		04/21/99		04/26/99		04/26/99		04/26/99	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

Station Location	MW09B		MW07B		MW07A		MW02A		MW02B		N/A		N/A	
Client Sample I.D.	50027		50023		50022		50010		50011		LRB		LRB	
Lab Sample I.D.	AB22148		AB22149		AB22150		AB22151		AB22152		AB22141		AB22141	
Date of Collection	04/26/99		04/26/99		04/26/99		04/27/99		04/27/99		N/A		N/A	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

Station Location	N/A
Client Sample I.D.	QL
Lab Sample I.D.	N/A
Date of Collection	N/A
Units	ug/L
Analyte	Result
Perchlorate	5

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

**US E.P.A.
REGION 9 LABORATORY**

**May 14, 1999
Case Number: R99S30
SDG: 99113C**

Laboratory Fortified Matrix (50038)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Spike Added (ug/L)	LFM Result (ug/L)	% Recovery	Q
04/26/99	Perchlorate	5	U	25	28.61	114	

Laboratory Fortified Matrix (50024)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Spike Added (ug/L)	LFM Result (ug/L)	% Recovery	Q
05/03/99	Perchlorate	5	U	25	23.88	96	

Laboratory Duplicate Sample (50038)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Duplicate Result (ug/L)	C	RPD	Q
04/26/99	Perchlorate	5	U	5	U	N/A	

Laboratory Duplicate Sample (50024)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Duplicate Result (ug/L)	C	RPD	Q
05/03/99	Perchlorate	5	U	5	U	N/A	

Laboratory Fortified Blank (LFB)

Analyzed Date	Analyte	TrueValue (ug/L)	Result (ug/L)	% Recovery
04/26/99	Perchlorate	45	45.72	102
05/03/99	Perchlorate	45	43.07	96

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

CASE NUMBER:	R99S30
SAMPLE DELIVERY GROUP:	50106
PROGRAM:	SUPERFUND
DOCUMENT CONTROL #:	ESTW-9B-2071
DATE:	05/17/99
ANALYSIS:	PERCHLORATE

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
50093	AB22183
50091	AB22184
50069	AB22185
50087	AB22186
50088	AB22187
50089	AB22188
50070	AB22189
50071	AB22190
50072	AB22191

GENERAL COMMENTS

Nine water samples were received from the Newmark Source OU Superfund project on 04/30/99.

The requested analysis was perchlorate by R9 Lab SOP 531. All samples were analyzed within the required technical holding time.

SAMPLE RECEIPT AND PRESERVATION

Sample ID "50073" was changed to "50072", as per the sampler. No other shipping or preservation problems were encountered with these samples.

ANALYTICAL COMMENTS

The requirements of the method were adhered to and all QA/QC criteria for perchlorate by R9 Lab SOP 531 were met.

QA/QC SUMMARY

Laboratory Reagent Blanks (LRB)

A laboratory reagent blank is laboratory reagent water or baked sand with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. The laboratory reagent blank is used to determine the level of contamination introduced by the laboratory during analysis.

No analyte was detected in the blank associated with this SDG.

Laboratory Fortified Matrix Spike (LFM) and Laboratory Duplicate Analysis (QC Sample: 50070)

The laboratory fortified matrix spike sample and laboratory duplicate analyses provide information about the effect of the sample matrix on sample preparation and measurement. Poor percent recovery (%R) results and

large relative percent difference (RPD) between duplicates may indicate inconsistent laboratory technique, sample nonhomogeneity in soils, or matrix effects which may interfere with analysis.

The LFM recovery was within the 75-125% method QC limits. The RPD for the duplicate was less than or equal to the QC limit of 20% for all analytes where the sample result was greater than or equal to 5 times the quantitation limit. For analytes where the sample result is less than 5 times the quantitation limit the difference between the duplicates was less than the quantitation limit, as required by the method.

Laboratory Fortified Blank (LFB) Analysis

The laboratory fortified blank is laboratory reagent water or baked sand with a known concentration of the analytes of interest added by the laboratory with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. Poor percent recovery (%R) results may indicate inconsistent laboratory technique.

The LFB recovery was within the method QC limits.

All other method QC criteria were met.

Questions concerning the data can be answered by Patrick Hirata at (510) 412-2354.

**USEPA REGION 9 LABORATORY
QUALIFIER DEFINITIONS FOR INORGANIC SAMPLE RESULTS**

- U** The analyte was analyzed for, but was not detected above one half the Quantitation Limit (QL). The reported value is the QL for all analytes.

- J** The reported value was obtained from a reading that was less than the Quantitation Limit (QL) but greater than or equal to one half the QL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R99S30
Site: NEWMARK SOURCE OU
SDG: 50106
Date: 05/17/99

Analysis: Perchlorate
Matrix: Water

Station Location	MUNI-109		MUNI-107		MWCOE-01A		MUNI-103		MUNI-103		MUNI-103		MWCOE01B	
Client Sample I.D.	50093		50091		50069		50087		50088		50089		50070	
Lab Sample I.D.	AB22183		AB22184		AB22185		AB22186		AB22187		AB22188		AB22189	
Date of Collection	04/27/99		04/28/99		04/28/99		04/29/99		04/29/99		04/29/99		04/29/99	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

Station Location	MWCOE01B		MWCOE01B		N/A		N/A
Client Sample I.D.	50071		50072		LRB		QL
Lab Sample I.D.	AB22190		AB22191		AB22192		N/A
Date of Collection	04/29/99		04/29/99		N/A		N/A
Units	ug/L		ug/L		ug/L		ug/L
Analyte	Result	Q	Result	Q	Result	Q	Result
Perchlorate	5	U	5	U	5	U	5

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QL - Quantitation Limit

**US E.P.A.
REGION 9 LABORATORY**

**May 17, 1999
Case Number: R99S30
SDG: 50106**

Laboratory Fortified Matrix (50070)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Spike Added (ug/L)	LFM Result (ug/L)	% Recovery	Q
05/07/99	Perchlorate	5	U	25	24.83	99	

Laboratory Duplicate Sample (50070)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Duplicate Result (ug/L)	C	RPD	Q
05/07/99	Perchlorate	5	U	5	U	N/A	

Laboratory Fortified Blank (LFB)

Analyzed Date	Analyte	TrueValue (ug/L)	Result (ug/L)	% Recovery
05/07/99	Perchlorate	45	44.81	100

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

CASE NUMBER:	R99S30
SAMPLE DELIVERY GROUP:	50017
PROGRAM:	SUPERFUND
DOCUMENT CONTROL #:	ESTW-9B-2066
DATE:	05/19/99
ANALYSIS:	PERCHLORATE

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
50017	AB22153
50016	AB22154
50015	AB22155
50014	AB22156
50013	AB22157
50012	AB22158
50036	AB22159
50035	AB22160
50019	AB22171
50018	AB22172
50020	AB22173
50021	AB22174
50037	AB22175
50065	AB22176
50055	AB22177
50054	AB22178
50049	AB22179
50095	AB22180

GENERAL COMMENTS

Eighteen water samples were received from the Newmark Source OU Superfund project on 04/28/99 and 04/30/99.

The requested analysis was perchlorate by R9 Lab SOP 531. All samples were analyzed within the required technical holding time.

SAMPLE RECEIPT AND PRESERVATION

No shipping or preservation problems were encountered with these samples.

ANALYTICAL COMMENTS

The requirements of the method were adhered to and all QA/QC criteria for perchlorate by R9 Lab SOP 531 were met.

QA/QC SUMMARY

Laboratory Reagent Blanks (LRB)

A laboratory reagent blank is laboratory reagent water or baked sand with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. The laboratory reagent blank is used to determine the level of contamination introduced by the laboratory during analysis.

No analyte was detected in the blanks associated with this SDG.

Laboratory Fortified Matrix Spike (LFM) and Laboratory Duplicate Analysis (QC Sample: 50014)

The laboratory fortified matrix spike sample and laboratory duplicate analyses provide information about the effect of the sample matrix on sample preparation and measurement. Poor percent recovery (%R) results and large relative percent difference (RPD) between duplicates may indicate inconsistent laboratory technique, sample nonhomogeneity in soils, or matrix effects which may interfere with analysis.

All LFM recoveries were within the 75-125% method QC limits. The RPDs for the duplicates were less than or equal to the QC limit of 20% for all analytes where the sample result was greater than or equal to 5 times the quantitation limit. For analytes where the sample result is less than 5 times the quantitation limit the difference between the duplicates was less than the quantitation limit, as required by the method.

Laboratory Fortified Blank (LFB) Analysis

The laboratory fortified blank is laboratory reagent water or baked sand with a known concentration of the analytes of interest added by the laboratory with all reagents added and carried through the same sample preparation and analytical procedures as the field samples. Poor percent recovery (%R) results may indicate inconsistent laboratory technique.

All LFB recoveries were within the method QC limits.

All other method QC criteria were met.

Questions concerning the data can be answered by Patrick Hirata at (510) 412-2354.

**USEPA REGION 9 LABORATORY
QUALIFIER DEFINITIONS FOR INORGANIC SAMPLE RESULTS**

- U** The analyte was analyzed for, but was not detected above one half the Quantitation Limit (QL). The reported value is the QL for all analytes.

- J** The reported value was obtained from a reading that was less than the Quantitation Limit (QL) but greater than or equal to one half the QL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R99S30
Site: NEWMARK SOURCE OU
SDG: 50017
Date: 05/19/99

Analysis: Perchlorate
Matrix: Water

Station Location	MW04B		MW04A		MW04A		MW04A		MW03B		MW03A		MW-127B	
Client Sample I.D.	50017		50016		50015		50014		50013		50012		50036	
Lab Sample I.D.	AB22153		AB22154		AB22155		AB22156		AB22157		AB22158		AB22159	
Date of Collection	04/27/99		04/27/99		04/27/99		04/27/99		04/27/99		04/27/99		04/27/99	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

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QL - Quantitation Limit

Station Location	MW-127A		MW05B		MW05A		MW06A		MW06B		MW-128A		MWCOE03	
Client Sample I.D.	50035		50019		50018		50020		50021		50037		50065	
Lab Sample I.D.	AB22160		AB22171		AB22172		AB22173		AB22174		AB22175		AB22176	
Date of Collection	04/27/99		04/27/99		04/27/99		04/28/99		04/28/99		04/28/99		04/28/99	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	U

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QL - Quantitation Limit

Station Location	MWCOE02		MUNI-11C		MUNI-7C		MUNI-116		N/A		N/A		N/A	
Client Sample I.D.	50055		50054		50049		50095		LRB		LRB		QL	
Lab Sample I.D.	AB22177		AB22178		AB22179		AB22180		AB22162		AB22162		N/A	
Date of Collection	04/28/99		04/28/99		04/29/99		04/29/99		N/A		N/A		N/A	
Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	
Perchlorate	5	U	5	U	5	U	5	U	5	U	5	U	5	

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

QL - Quantitation Limit

**US E.P.A.
REGION 9 LABORATORY**

**May 19, 1999
Case Number: R99S30
SDG: 50017**

Laboratory Fortified Matrix (50014)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Spike Added (ug/L)	LFM Result (ug/L)	% Recovery	Q
05/03/99	Perchlorate	5	U	25	23.09	92	

Laboratory Duplicate Sample (50014)

Analyzed Date	Analyte	Sample Result (ug/L)	C	Duplicate Result (ug/L)	C	RPD	Q
05/03/99	Perchlorate	5	U	5	U	N/A	

Laboratory Fortified Blank (LFB)

Analyzed Date	Analyte	TrueValue (ug/L)	Result (ug/L)	% Recovery
05/03/99	Perchlorate	45	43.07	96
05/03/99	Perchlorate	45	45.00	100